

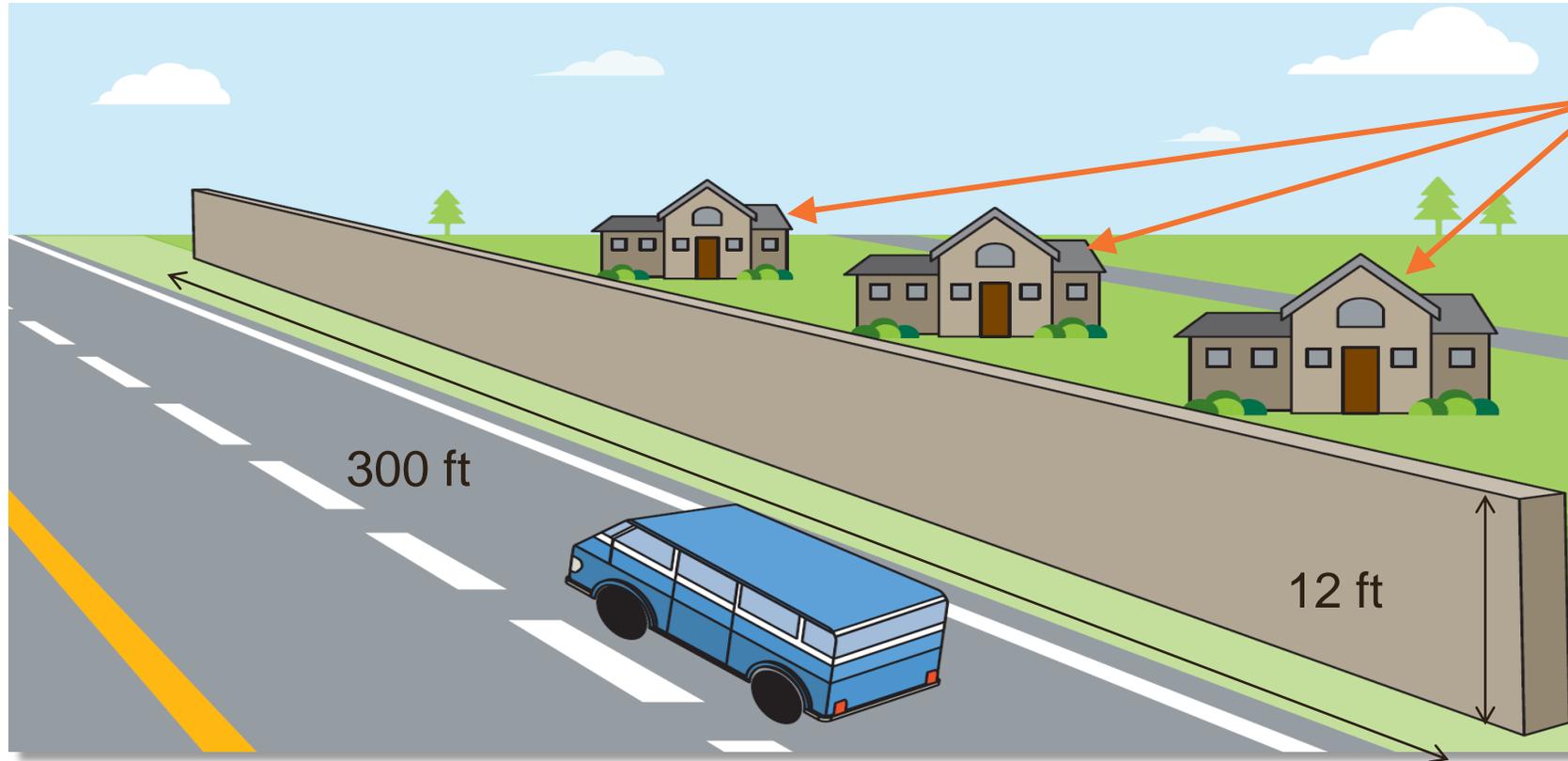
Noise Barriers

Reasonable

- **Cost-effectiveness:**
 - Maximum 1,600 square feet of noise barrier or less per benefited residence
- **Design goal**
 - 7 decibels of noise reduction at 1 impacted receptor
- **Viewpoints of the benefited receptors**
 - Democratic vote of the benefited receptors
 - 50% of the benefited respondents must favor construction
 - Partial mitigation may occur as a result of the vote



Noise Barriers - Reasonable

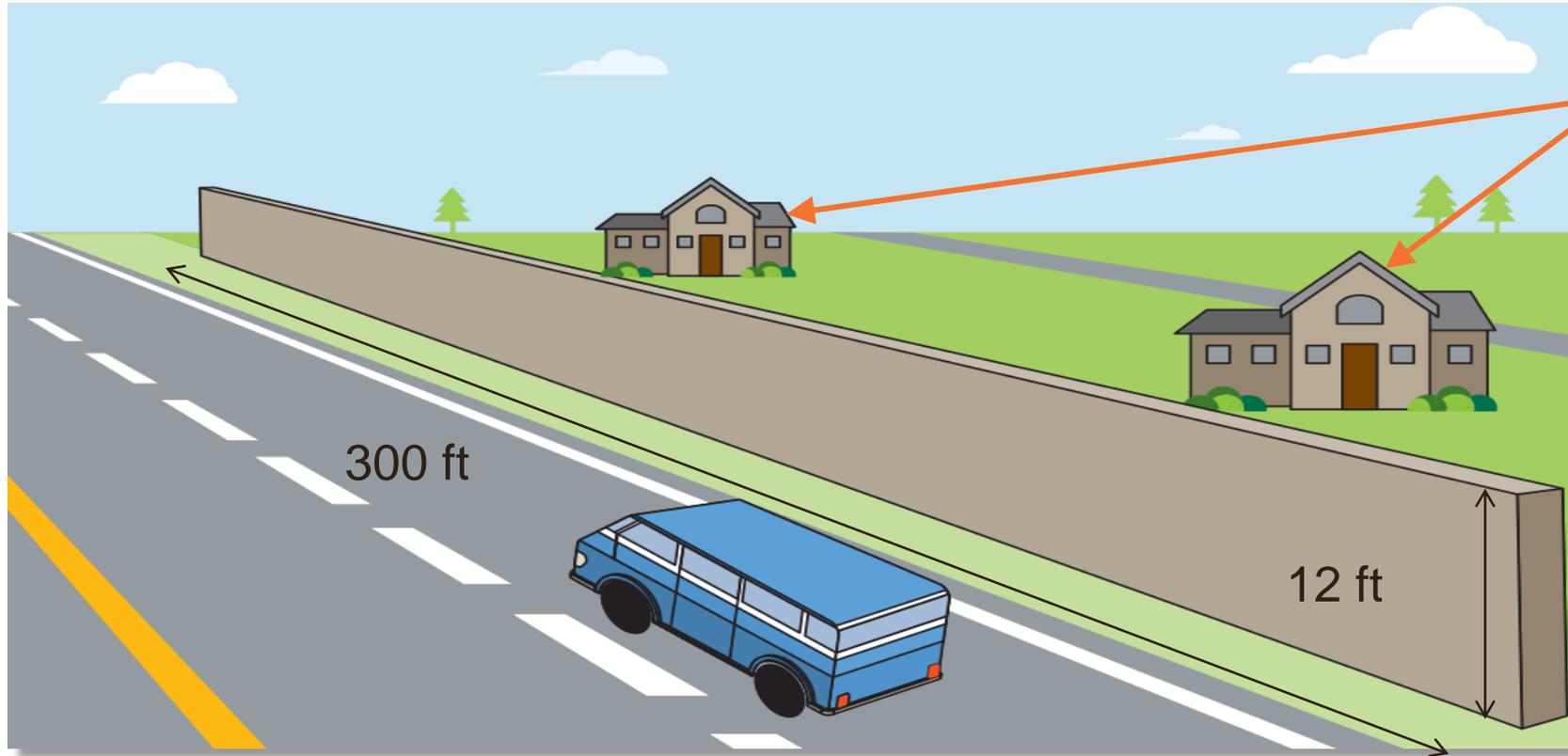


Benefitted Receptors (BR)

$$\text{Reasonableness} = \frac{300 \times 12}{3} = \frac{3,600}{3} = 1,200 \text{ SF/BR} < 1,600 \text{ SF/BR}$$

- Therefore, meets reasonableness cost-effective criteria

Noise Barriers – Not Reasonable



Benefitted Receptors (BR)

$$\text{Reasonableness} = \frac{300 \times 12}{2} = \frac{3,600}{2} = 1,800 \text{ SF/BR} > 1,600 \text{ SF/BR}$$

- Therefore, does not meet reasonableness cost-effective criteria

Noise Barriers

Feasibility

- **Does it work acoustically?**
 - VDOT requires that 50% or more of the impacted receptors experience 5 dB(A) or more of noise reduction to be feasible;

AND

- **Can it be constructed?**
 - Factors related to design and construction include; safety, barrier height, topography, drainage, utilities, and maintenance of the abatement measure, maintenance access to adjacent properties, and general access to adjacent properties.